STATE OF SOUTH CAROLINA)
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South Carolina Electric & Gas Company's Annual Update on Demand Side Management Programs for Petition for an Update to Rate Rider)
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BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

COVER SHEET

DOCKET NUMBER: 2012 - 55 - E

(Please type or print)

Submitted by: J. Blanding Holman
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DOCKETING INFORMATION (Check all that apply)

☐ **Emergency Relief demanded in petition** ☐ **Request for item to be placed on Commission's Agenda expeditiously**

☐ **Other:**

INDUSTRY (Check one)

- ☒ Electric
- ☐ Electric/Gas
- ☐ Electric/Telecommunications
- ☐ Electric/Water
- ☐ Electric/Water/Telecom.
- ☐ Electric/Water/Sewer
- ☐ Gas
- ☐ Railroad
- ☐ Sewer
- ☐ Telecommunications
- ☐ Transportation
- ☐ Water
- ☐ Water/Sewer
- ☐ Administrative Matter
- ☐ Other:

NATURE OF ACTION (Check all that apply)

- ☐ Affidavit
- ☐ Agreement
- ☐ Answer
- ☐ Appellate Review
- ☐ Application
- ☐ Brief
- ☐ Certificate
- ☒ Comments
- ☐ Complaint
- ☐ Consent Order
- ☐ Discovery
- ☐ Exhibit
- ☐ Expedited Consideration
- ☐ Interconnection Agreement
- ☐ Interconnection Amendment
- ☐ Late-Filed Exhibit
- ☐ Letter
- ☐ Memorandum
- ☐ Motion
- ☐ Objection
- ☐ Petition
- ☐ Petition for Reconsideration
- ☐ Petition for Rulemaking
- ☐ Petition for Rule to Show Cause
- ☐ Petition to Intervene
- ☐ Petition to Intervene Out of Time
- ☐ Prefiled Testimony
- ☐ Promotion
- ☐ Proposed Order
- ☐ Protest
- ☐ Publisher's Affidavit
- ☐ Report
- ☐ Request
- ☐ Request for Certification
- ☐ Request for Investigation
- ☐ Resale Agreement
- ☐ Resale Amendment
- ☐ Reservation Letter
- ☐ Response
- ☐ Response to Discovery
- ☐ Return to Petition
- ☐ Stipulation
- ☐ Subpoena
- ☐ Tariff
- ☐ Other:

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March 30, 2012

Jocelyn Boyd, Esquire
Chief Clerk/Administrator
Public Service Commission of South Carolina
101 Executive Center Drive, Suite 100
Columbia, South Carolina 29210

Re: South Carolina Electric & Gas Company's Annual Update on Demand Side Management Programs and Petition for an Update to Rate Rider, Docket No. 2012-55-E

Dear Ms. Boyd:

Southern Alliance for Clean Energy and the South Carolina Coastal Conservation League (collectively, "Petitioners"), through counsel, respectfully submit the following comments and recommendations concerning South Carolina Electric & Gas Company's ("SCE&G" or "the Company") Annual Update on Demand Side Management Programs and Petition for an Update to Rate Rider ("2012 Update"), which SCE&G filed on January 31, 2012.[1]

Based on Petitioners' review of the 2012 Update and discussions with the Company, Petitioners commend the Company for the successful start-up of its programs and generally support its petition for an update to its demand-side management ("DSM") cost recovery rider. However, Petitioners have a few concerns and recommendations. The Company should explain why it did not include in its filing net lost revenue and shared incentive true ups for the 2010 Establishment period and Year 1, as called for

[1] Petitioners filed an intervention petition in this docket on March 1, 2012, which provided that "Petitioners plan to present their position in the form of written comments to be filed by April 1, 2012, or by such other date as established by the Commission." Intervention Petition at 2. Accordingly, Petitioners submit these comments, which were prepared with the assistance of Natalie Mims, Energy Policy Manager at Southern Alliance for Clean Energy.

under the annual filing schedule set forth in the Settlement Agreement approved in Docket No. 2009-261-E.[2] Further, Petitioners recommend that the Company (i) conduct robust and transparent evaluation, measurement & verification ("EM&V") and provide information on how the shared savings mechanism is calculated; (ii) increase efficiency opportunities for the industrial customer sector; (iii) consider existing program delivery models as it develops a low-income residential energy efficiency program; and (iv) strengthen its efficiency portfolio by adding additional measures and programs in the future.

I. SCE&G's energy savings forecasts are significant for a start-up portfolio, but these projections must be subject to robust and transparent EM&V and true-up processes.

A. The Company's savings forecasts are strong for a start-up portfolio.

SCE&G anticipates that it will save approximately 103 GWh in year 1 and 122 GWh in year 2 of program implementation. 2012 Update, Exhibit 1. As Table 1 shows below, these energy savings numbers equate to 0.45% of sales and 0.53% of sales, respectively. While Petitioners believe that the Company should seek to achieve greater levels of savings as its program offerings mature, we applaud the Company's efforts thus far. Annual savings equivalent to roughly one half of a percent of electricity sales during the first two full years of program rollout are significant.

[2] *See* Order Approving SCE&G's Request for the Establishment and Approval of DSM Programs and Rate Rider ("DSM Approval Order"), Exhibit 1 at 5, Order No. 2010-472, South Carolina PSC Docket No. 2009-261-E (July 15, 2010).

Table 1. Savings as a Percentage of Sales (GWh)

	Forecasted Energy Efficiency Savings[3]	Projected Energy Sales[4]	Savings as Percentage of Sales
2011 (year 1)	102.9	22,952	0.45%
2012 (year 2)	121.6	23,161	0.53%

B. The Company has not yet completed an EM&V review of its programs.

Although the Company appears to be on the right track in terms of program delivery, no evaluation, measurement and verification results have yet been generated. *See* 2012 Update at ¶13. In other words, the savings projections are not based on actual program performance data. EM&V is critical to evaluating the effectiveness of utility and ratepayer investments in the energy efficiency resource. Therefore, until the Company completes the EM&V for the initial Review Period, it is difficult to know whether the programs are being implemented effectively.

EM&V is also the foundation for net lost revenues and the shared-savings incentive. Impact evaluations, which are conducted within the EM&V process, determine a given program's impact on demand and energy consumption, and provide the savings numbers used to true up the Company's projected lost revenues and incentives.[5] Actual market penetration data is also used in the true-up process.[6]

[3] 2012 Update, Exhibit 1
[4] SCE&G 2011 IRP at 1.
[5] *See* DSM Approval Order, Exhibit 1 at 8-10 ("After EM&V results becomes available, projected net lost revenues shall be included in the annual filing and trued-up for the time period since the last annual filing with actual net lost revenues. … After EM&V results become available, true-ups will occur during the annual filings between the estimated and actual net program benefits so that the incentive ultimately to be recovered for a given program year is based on the actual program net benefits derived from EM&V results.").
[6] DSM Approval Order at 12 ("At the end of each review period, the net lost revenue for that review period will be recalculated and trued-up using actual market penetration data.").

SCE&G has not yet completed an EM&V report. 2012 Update at ¶13. EM&V results are due no later than six months after each reporting period, unless otherwise agreed upon by the Office of Regulatory Staff ("ORS") and SCE&G,[7] and the Company plans to complete its first EM&V report in May 2012. *Id.* We urge the Company to adopt best practices for EM&V that result in a timely, robust, and transparent process and provide the most accurate estimates of actual program impacts. We also suggest that the Company provide in its EM&V reports all inputs necessary to calculate the shared savings incentive, including savings per measure and measure life, so that the level of energy efficiency savings to which the incentive is tied can be independently verified.

C. <u>The Company has not yet trued up its net lost revenue and incentive projections for the first 14 months of program implementation</u>.

In its 2012 Update, the Company based its calculation of net lost revenues and the shared savings incentive on projections from October 2010 through November 2011, and plans to true-up the forecasts in its January 2013 annual filing. 2012 Update at ¶13. This plan, however, does not appear to comport with the schedule set forth in the Commission's DSM Approval Order nor with the Company's statements in its 2011 Update.

The settlement agreement approved in Docket No. 2009-261-E provides the following schedule for annual recovery proceedings:

[7] DSM Approval Order at 15.

Table 2: Annual Recovery Proceeding Chart from Settlement Agreement in 2009-261-E[8]

SCE&G Filing Date	**Program Year**	**Annual Recovery Proceeding**		
		Program Costs	**Net Lost Revenues**	**Incentive**
April 2010 Establishment		Actual costs through Oct. 2009.	Estimated through Nov. 2010	Estimated through Nov. 2010
Jan. 2011	1	Actual costs Nov. 2009 through Oct. 2010. Estimated costs for Nov. 2010.	Estimated through Nov. 2011	Estimated through Nov. 2011
Jan. 2012	2	True-up of Nov. 2010 costs. Actual program costs Dec. 2010 through Oct. 2011. Estimated costs for Nov. 2011.	Estimated through Nov. 2012. Actual data will be available for the 2010 Establishment period and year 1. A true-up will occur for the 2010 Establishment period and year 1.	Estimated through Nov. 2012. Actual data will be available for the 2010 Establishment and year 1. A true-up will occur for the 2010 Establishment period and year 1.
Jan. 2013	3	True-up of Nov. 2011 costs. Actual program costs Dec. 2011 through Oct. 2012. Estimated costs for Nov. 2012.	Estimated through Nov. 2013. Actual data will be available for year 2 and a true-up will occur.	Estimated through Nov. 2013. Actual data will be available for year 2 and a true-up will occur.
Jan. 2014		True-up of Nov. 2012 costs and any other true-up for year 3 if needed.	Actual data will be available for year 3 and a true-up will occur.	Actual data will be available for year 3 and a true-up will occur.

[8] DSM Approval Order, Exhibit 1 at 5 (highlights added).

As the highlighted portion of Table 2 reflects, the Company's 2012 Update – the January 2012 annual filing – should include a net lost revenues and incentive true-up for the 2010 Establishment period and year 1 based on actual data. Moreover, in its January 2011 annual filing, SCE&G provided that the amount of net lost revenues to be recovered during the "Recovery Period," the first billing cycle of May 2011 through the last billing cycle of April 2012, "will be recalculated and trued up in the January 2012 annual filing." 2011 Update at ¶ 6. The Company also provided that the allowable shared savings incentive for the Reporting Period, December 2010 through November 2011 "will be trued up in the January 2012 annual filing." *Id.* at ¶ 7. The Commission approved the Company's updated Rate Rider as requested in the 2011 filing "subject to true-up in SCE&G's 2012 annual filing."[9]

In light of the foregoing, the Company should explain why its filing does not include the true ups.

II. SCE&G's industrial opt-out rate is higher than those of its peer utilities and the Company should look for opportunities to increase industrial participation.

Qualifying industrial customers may opt out of the Company's DSM programs if they implement their own energy efficiency programs.[10] Importantly, the opt-out provision does not exempt industrial customers from engaging in energy efficiency efforts altogether. Instead, it allows industrial customers to opt out of the Company's programs only if they notify the Company that they have implemented or will implement their own programs at their own expense.

[9] Order Approving Update to DSM Rider at 3, Order No. 2011-390, South Carolina PSC Docket No. 2011-49-E (May 24, 2011).
[10] DSM Approval Order at 18-19.

Industrial customers are an energy-intensive sector and therefore represent a large energy efficiency resource opportunity. Indeed, SCE&G has reported that large commercial and industrial customers have delivered about 50% of SCE&G's energy efficiency savings. *See* 2012 Update, Exhibit 1. Failure to utilize this resource opportunity increases system costs for all classes of customers. The Company has reported that as of November 2011, 379 industrial customer accounts, representing 71% of SCE&G's industrial load, have opted out of its energy efficiency programs. 2012 Update at ¶20. As shown in Table 3, SCE&G's opt-out rate is higher than that of its peer utilities.

Table 3. South Carolina Investor Owned Utility Opt Out as a Percentage of C&I Sales

Utility	% of MWh opted out
SCE&G[11]	71%
Duke Energy Carolinas[12]	46%
Progress Energy Carolinas[13]	54%

Although the decision to opt-out is up to the customers, Petitioners believe that the Company could do more to provide its industrial customers with high-quality energy efficiency program opportunities, and would like to highlight two non-residential commercial programs for the Company's consideration. These programs are run by

[11] In its petition, SCE&G provides that the retail electric sales associated with these accounts represent roughly 71% of industrial load. For the DEC and PEC comparisons, Petitioners used commercial and industrial opt-outs and commercial and industrial retail sales.
[12] *See* Application of Duke Energy Carolinas, LLC for Approval of Rider 3, Exhibit 5, South Carolina PSC Docket No. 2011-420-E (October 11, 2011).
[13] *See* Application of Progress Energy Carolinas, Incorporated for Approval of its Demand-Side Management and Energy Efficiency Rider, Evans Exhibit 3, South Carolina PSC Docket No. 2012-93-E (March 1, 2012).

Focus on Energy ("FOE"), a statewide energy efficiency provider in Wisconsin that has offered industrial efficiency programs since 2001. Wisconsin FOE estimates that more than 90% of large industrial energy users have participated in multiple programs, and many customers have worked with Wisconsin FOE on 20 projects or more. Few, if any, customers opt out, and the high participation rates are attributable to the high quality of programs.

One of FOE's industrial programs targets food-processing facilities, which represent a significant percentage of industrial energy consumption in both Wisconsin and the Southeast. Nestle, USA has several facilities throughout Wisconsin and has participated in multiple efficiency projects with Wisconsin FOE. Improvements at the Eau Claire, Wisconsin facility, for example, saved the Company roughly $200,000 in energy costs. Another Wisconsin FOE program focuses on the plastics industry. Phillips Plastic, an injection molding company, saved approximately $31,000 in annual energy costs from recent chiller project. For more information on these FOE efficiency projects, see the attached case study in Appendix 1.

We urge the Company to work closely with industrial customers and industrial efficiency experts to develop more attractive programs that meet the needs of industrial customers, and to explore ways to improve the quality of their existing programs directed at this important customer sector.

III. The Company should review current program delivery models as it develops a low-income energy efficiency program.

SCE&G will be evaluating options for a new program aimed at low-income customers and anticipates presenting this program for Commission approval in its next annual filing in January 2013. 2012 Update at ¶ 7.[14] Petitioners support the development and implementation of a low-income program and provide the following four examples of program delivery models used in South Carolina for the Company's consideration.

First, Progress Energy Carolinas is using a community model for its low-income efficiency program, Neighborhood Energy Saver. The program is different than a standard incentive program because it directly installs energy efficiency measures in homes, one neighborhood at a time. This program has achieved 85% participation rates in the neighborhoods where it is offered. Since April 2010, Progress Energy Carolinas has served almost 5,000 program participants, and each participating household has saved approximately $150 annually due to the efficiency measurements they have installed. Additionally, the program is proving to be more cost-effective than other residential programs with a levelized cost of $49/MWh.[15]

Second, Progress also recently filed for Commission approval of a pilot program that will serve low-income customers in North and South Carolina.[16] The program, Residential Prepay, will allow customers to pay for their electricity up front, and will

[14] *See also* DSM Approval Order at 7 (addressing the development of a low-income program to be implemented in program year two or three).
[15] Progress Energy Carolinas, Inc.'s DSM/EE Cost Recovery Rider Application, South Carolina PSC Docket No. 2012-93-E (March 1, 2012).
[16] *See* South Carolina PSC Docket No. 2009-190-E and North Carolina Utilities Commission Docket E-2 Sub 1011.

facilitate bill management by providing customers with daily usage information. Customers will be able pay the amount they choose when they choose, thereby avoiding unexpectedly high bills.

Third, on-bill financing, coupled with the existing residential building incentives that SCE&G offers, is another option. Often, low-income customers are not able to pay the upfront capital costs for efficiency upgrades. The South Carolina Electric Cooperatives and Central Generation & Transmission are currently piloting an on-bill financing program. Preliminary results indicate greater enthusiasm and participation by low-income and mobile home owners than the cooperatives anticipated.

Finally, Duke Energy Carolinas determined that a residential program not specifically designed for low-income customers attracted much higher low-income participation than the Company had anticipated. Duke found that CFL offers through automated Interactive Voice Response and a web platform had greater low-income customer participation than targeted CFL giveaways conducted by Community Action Agencies. In addition to the CFL offerings, Duke provides funding for low-income homes to implement weatherization measures, refrigerator replacements, and heating system replacement.

IV. SCE&G should expand its current program offerings.

Although SCE&G is not proposing any additional programs in this proceeding and we understand that the Company is focusing on implementation of its current programs and the development of a low-income program, the Company should also be

engaged in development of future additional programs. Petitioners therefore offer the following brief comments on additional program ideas, and look forward to discussing them with the Company and ORS.

SCE&G has energy efficiency programs offerings in most of the same markets targeted by its peer South Carolina investor owned utilities ("IOUs"), as illustrated in Table 4. Notably, SCE&G may be the first utility in the Southeast to offer the comprehensive "Home Performance with Energy Star" program model, which is offered by many utilities across the country.

Table 4. South Carolina IOU EE Programs

Program Type	Utility		
	SCE&G	Duke Energy Carolinas	Progress Energy Carolinas
Appliance recycling	No	Proposed	Yes
Residential lighting	Yes (Energy Star Lighting)	Yes (Residential Smart Saver)	Yes (Residential Lighting, Home Depot CFL)
Behavior program with energy consumption comparison	Yes (Home Energy Reports)	Yes (My Home Energy Report Program)	Yes (Residential EE Benchmarking)
Energy management/display	Yes (Energy Information Display)	No	Proposed (Residential Pre Pay program)
Low income	To be proposed in January 2013	Yes (Low Income EE and Weatherization)	Yes (Neighborhood Energy Saver)
Education	No	Yes	No
Home audit	Home Energy Check-Up (visual); Home Performance with Energy Star (comprehensive)	Yes (Residential Energy Assessments)	Yes (Home Energy Improvement Program)
Existing residential	Yes (Heating & Cooling and Water Heating Equipment)	Yes (Residential Smart Saver, My Energy Manager)	
Residential new construction	Yes (Energy Star New Homes)	No	No
Behavior program for commercial customers	No	Yes (Smart Energy Now)	No

Small business	No	No	Yes (Small Business Direct Install)
C&I prescriptive	Yes (C&I Prescriptive)	Non- Residential Smart Saver Lighting, Motors, Other Prescriptive, Energy Star Food, and HVAC	Yes (Commercial, Industrial, Government EE program)
C&I custom	Yes (C&I Custom)	Yes (Non-Residential Smart Saver Custom)	
Solar hot water	No	No	Yes (Pilot Solar Hot Water Program)
Retro-commissioning	No	No	No

SCE&G could improve its program portfolio by adding appliance recycling, commercial behavioral programs, small business and retro-commissioning programs, and by offering more measures to the existing residential market. We also urge the Company to ensure that its programs, particularly residential new construction, are designed to adjust to new building codes as they are implemented.[17]

V. Conclusion and Recommendations

In conclusion, Petitioners commend SCE&G for its continuing progress with its new programs. We recommend that the Commission approve SCE&G's application and offer several recommendations. Petitioners recommend that the Commission direct SCE&G to provide a written explanation as to why it did not include lost revenue and incentive true ups for the 2010 Establishment Year and Year 1, as called for under the annual filings schedule set forth in Docket No. 2009-261-E. Petitioners further recommend that the Company (i) conduct robust and transparent EM&V and provide

[17] Petitioners understand that House Bill 4639, which amends § 6-10-30 of the Code of Laws of South Carolina by adopting the 2009 edition of the International Energy Conservation Code as the energy standard of South Carolina, was ratified on March 29, 2012. *See* Legislation Search, *available at* http://www.scstatehouse.gov/billsearch.php (last visited on March 30, 2012).

information on how the shared savings mechanism is calculated; (ii) increase efficiency opportunities for the industrial customer sector; (iii) consider existing program delivery models as it develops a low-income residential energy efficiency program; and (iv) strengthen its efficiency portfolio in the future by adding additional measures and programs.

Respectfully submitted this 30th day of March, 2012.

s/ J. Blanding Holman, IV
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Attorney for Petitioners

CERTIFICATE OF SERVICE

I hereby certify that the parties listed below have been served via first class U.S. Mail with a copy of the Comments of the South Carolina Coastal Conservation League and Southern Alliance for Clean Energy.

Jeffrey M. Nelson
Office of Regulatory Staff
1401 Main Street, Suite 900
Columbia, SC 29201

K. Chad Burgess
South Carolina Electric & Gas Company/SCANA Corporation
MC C222
220 Operation Way
Cayce, SC 29033-3701

This 30th day of March, 2012.

s/ J. Blanding Holman, IV
J. Blanding Holman, IV

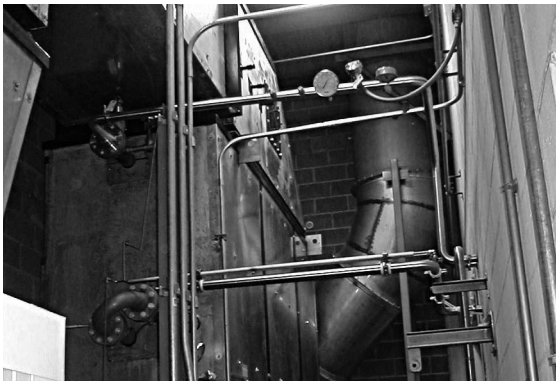
Appendix 1

BUSINESS PROGRAMS

Nestlé USA saves energy with new condensing-economizer system

CASE STUDY

With today's high energy costs, it's no surprise that companies are searching diligently for ways to improve energy efficiency. With a financial incentive from Focus on Energy, Wisconsin's statewide program for energy efficiency and renewable energy, Nestlé USA's infant formula plant in Eau Claire was able to turn what had once been wasted air into daily energy savings of $550 with the installation of a condensing economizer system. The condensing economizer captures the latent heat from water vapor in the flue gas.



New condensing economizer and exhaust stack.

Nestlé USA first began to investigate installing a condensing economizer system in early 2005. These systems transfer a substantial amount of sensible and latent heat from the hot flue gases to the boiler make-up water. In Nestlé USA's case, the energy is used to pre-heat cold boiler water. Rising natural gas prices—which have jumped by nearly 90 percent since 2001—made the equipment a top priority, and a financial incentive from Focus on Energy meant that system payback was less than three years.

Nestlé USA installed a condensing-economizer system on two water-tube boilers. The condensing economizer was chosen because it extracts heat that cannot be recovered by a conventional economizer alone. In addition, the system's fan is controlled by a variable-frequency drive (VFD) to optimize energy efficiency. These controls mean the fan only operates when there's a sufficient level of heat to warrant it. Other systems throttle the flow with a damper instead of slowing down the fan.

Net energy savings for the project were 13,500 million Btus, which equals the natural gas savings less the corresponding increase in electricity used by the economizer fan. All estimated savings were based on a conservative average load of 37 percent and are expected to be higher during the heating season. A Focus on Energy Measurement and Verification (M&V) study conducted in April 2006 showed that actual savings were very close to projections.

THE OPPORTUNITY

Many of Nestlé USA's production processes rely on heated water; water comes out of the main at roughly 50 degrees farenheit and requires a substantial amount of energy to heat.

PROJECT SUMMARY	
Project Cost	$340,000
Therm Savings	141,864
Energy Savings	$110,675
Focus Incentive	$40,386
Energy Payback	2.7 years

Nestlé USA Food Company is headquartered in Vevey, Switzerland and is the world's largest food and beverage company, with 250,000 employees worldwide. The Eau Claire facility is a branch of Nestlé USA, the company's U.S. division. Nestlé USA has worked with Focus on Energy, in partnership with Xcel Energy, since 2002. Efficiency upgrades have been completed at locations throughout Wisconsin including Eau Claire, Hager City, Jefferson, Burlington, and Stoughton. Improvements at the Eau Claire plant alone have saved nearly $200,000 in energy costs, and this facility received the Governor's Award for Excellence in Energy Efficiency in 2006. This award recognizes the company's efforts to reduce dependence on fossil fuels, stimulate the economy, and preserve the environment.

For more information, call **800.762.7077** or visit **focusonenergy.com.**

focus on energy℠
The power is within you.

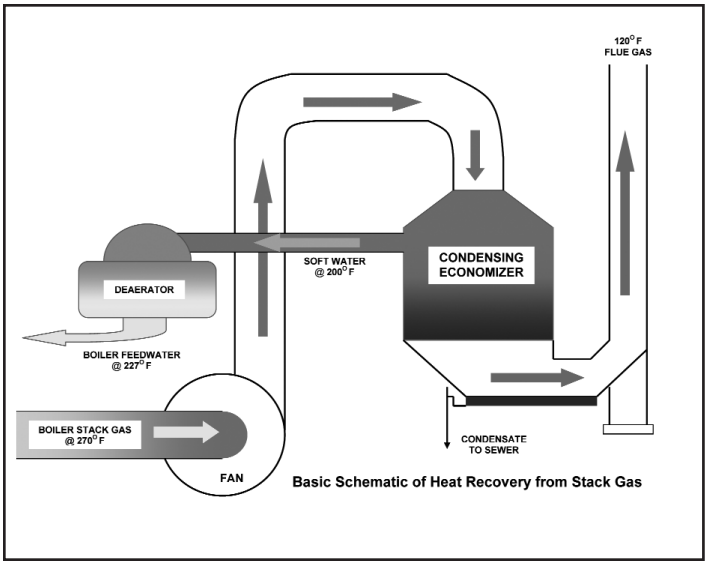


Figure 1: Schematic of a heat flow through condensing economizer system.

The company had considered installing a condensing-economizer system in the past to heat water more efficiently, but relatively low natural gas prices and high equipment costs made the payback period prohibitively long.

THE SOLUTION

Rising natural gas prices meant that it was critical to install more energy-efficient equipment, and the Focus on Energy financial incentive helped tip the purchase decision. Nestlé's new system has a number of energy-optimizing features including a condensing economizer and a VFD-controlled economizer fan. The system draws hot flue gases from the boiler stacks and recycles it to pre-heat boiler make-up water. "Using the exhaust to pre-heat the make-up water can add as much as 120 degrees of heat—and creates substantial energy savings," said Ken Williams, Focus on Energy's business programs director.

PROJECT BENEFITS

"Beyond the huge energy savings, our new condensing economizer system helps our operation run more smoothly with little worry of being able to meet our steam needs," said Larry Willi, facilities engineer at Nestlé USA.

Pre- and post-installation measurements by Focus on Energy showed an annual savings of nearly 142,000 therms, which is offset somewhat by an increase in electricity use of 208,823 kilowatt-hours (kWh) per year to operate the economizer fan. The net energy savings are 13,500 million Btus per year. Post-installation measurements were taken during April 2006; and system savings are expected to be even higher during the heating season.

The estimated cost to develop and install the economizer was $340,000 and the project qualified for a $40,386 Focus on Energy financial incentive. Annual energy savings were estimated at $110,675 based on a blended rate of $0.05 per kWh and $0.80 per therm (which was a two-year cost average at the time). This figure includes the deduction for increased electrical use by the economizer fan.

In addition, the ability to deliver hot water more rapidly to the production process helps to ensure that production flows smoothly. "It's almost like increasing your boiler capacity," said Williams.

"The implementation grant from Focus on Energy, along with the presence and support of its energy advisor, helped us move this project to high priority," said Willi.

HOW CAN FOCUS ON ENERGY HELP YOU?

Looking for ways to improve energy efficiency at your production facility? Focus on Energy can help. Our experienced and knowledgeable industry-specific energy advisors can offer best practice support in a number of areas including project evaluation assistance, measurement, evaluation of savings, financial assistance for stalled projects, training opportunities, tools to manage energy, and third-party reviews. To learn more, call **800.762.7077** or visit **focusonenergy.com**.

Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. Focus information, resources, and financial incentives help to implement projects that otherwise would not be completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment, and control the state's growing demand for electricity and natural gas. For more information, call **800.762.7077** or visit **focusonenergy.com**.

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The power is within you.

BUSINESS PROGRAMS

New Chiller Technology Saves Phillips Plastics Time and Money

CASE STUDY

Focus on Energy, a statewide service, works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. We provide technical expertise, training and financial incentives to help implement innovative energy management projects. We place emphasis on helping implement projects that otherwise would not get completed, or to complete projects sooner than scheduled. Our efforts help Wisconsin residents and businesses manage rising energy costs, protect our environment and control the state's growing demand for electricity and natural gas.

To learn more about Focus on Energy,SM call 800.762.7077 or visit focusonenergy.com

Phillips Plastics' Multi-shot facility in Eau Claire requires a steady supply of chilled water to ensure optimum product quality and cycle times. Long known as a forward thinker when it comes to energy efficiency, the facility recently installed an innovative frictionless chiller that delivers nearly three times the water supply of its previous unit, while cutting energy usage by nearly 75 percent.

The new chiller, from McQuay Air Conditioning, uses frictionless technology and is among the first installations of this new technology in the state. The unit has a capacity of 160 tons—vs. the 60-ton capacity of the old chiller—which means that the facility can easily meet both current and expanding production needs.

Pre- and post-installation tests run by Focus on Energy, Wisconsin's energy efficiency and renewable energy program, showed that the new chiller saves 70.8 kW of demand and 611,712 kilowatt hours (kWh) of electricity annually.

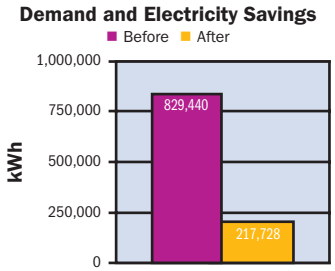
THE OPPORTUNITY

Phillips Plastics was using a 60-ton chiller with an energy rating of 1.13 kW per ton. Running on a 24/7 schedule, the plant was routinely operating at or above that capacity level, and constant demands on the chiller meant it typically provided water at 55° F—a less-than-optimum temperature that was slowing the production cycle.

Frank Rushmann, Facility Manager, and management thought it had two options: increase capacity with the addition of a second chiller (a 25-ton chiller was in storage at another facility) or replace the existing unit with a new, larger-capacity chiller. The used chiller was the least expensive option in the short-run, but had only the same 1.13 kW per ton rating as the existing chiller and didn't add much additional capacity. A new, standard-issue chiller would have an energy rating in the neighborhood of .65 kW per ton—a definite energy savings, but not necessarily enough to cost-justify the capital expenditure.

Frank Rushmann, Phillips Plastics Facility Manager, with new McQuay turbo core chiller with digital operator interface over right shoulder displaying current energy consumption.

PROJECT SUMMARY	
Project Cost	$145,000
Energy Savings	$31,809
Focus Incentive	$15,066
Energy Payback	4 years



THE SOLUTION

Business ally Erv Smith recommended a frictionless chiller that ensured sufficient quantities of chilled water to meet current and future production needs, and saved Phillips Plastics $31,809 in annual energy costs.

"With this new technology there are no bearing surfaces. This means that the compressor can run without oil and that the heat transfer surfaces are much more efficient" said Noel Smith, president of ally Erv Smith Services. "The combination of frictionless technology and the oversized chiller does a number of things: it provides capacity that meets current needs and future ones, and even partially loaded it runs at a phenomenal .31 kW per ton—about 27 percent of the energy of their old chiller."

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Phillips Plastics has been a leader in injection molding services since 1964 and has six plastic injection molding facilities located throughout northern Wisconsin. Its Multi-shot facility in Eau Claire, Wisconsin delivers world-class capabilities in engineering, design, tooling and molding, and specializes in creating thermoplastic components comprised of two or more resins. The Multi-shot facility has partnered with Focus on Energy on numerous occasions since 2002. Other projects include the installation of a VFD air compressor and a cooling tower with variable speed drive, as well as ongoing HVAC-maintenance. To date these projects have saved Phillips 671,775 kWh, or $33,588.

PROJECT BENEFITS

The new chiller reduces Phillips Plastics' annual electricity usage by 611,712 kWh and cuts demand by 70.8 kW.

These energy savings translate to enough energy to do the following annually:

- Power 40 average homes in Wisconsin
- Save the equivalent of 791 barrels of oil
- Remove the equivalent of 65 cars from the road

Other benefits include a decreased risk of downtime created by insufficient cooling capacity, the security of having a new piece of equipment—which also decreases the risk of downtime—and increased product quality, courtesy of a reliable chilled water supply. The new chiller can provide water at 44° F, a temperature which helps to decrease cycle time.

"This situation is an excellent example of the value of having good partners and being a progressive company," said Dean Laube, an Energy Advisor for Focus on Energy. "If your allies know that you're receptive to new ideas, they're more likely to bring them to you instead of just presenting status quo solutions that might not be as effective."

The total cost for the system was $145,000. With an estimated savings of $31,809 in annual energy costs, and a Focus on Energy incentive of $15,066, payback on the installation is just over four years.

The Multi-shot facility is one of over ten manufacturing locations Phillips Plastics has in Wisconsin.

PROJECT TEAM

Phillips Plastics
Project management

Erv Smith
Distribution and installation

McQuay Air Conditioning
Equipment supplier

Focus on Energy
Pre- and post-installation metering, verification of vendor's energy calculations, project grant

Energy efficient McQuay turbo core chiller providing process chilled water for the plastics industry.

How can focus on energy help you?

"We rely on Focus on Energy to be our sounding board for new ideas. They've been an excellent resource when we're trying to determine the best ways to save energy and money. Plus, Focus incentives have often helped us to cost-justify a new, energy-efficient purchase"

Frank Rushmann
Phillips Plastics Multi-shot Facility
Facility Manager

Companies that are looking for ways to improve the efficiency of their manufacturing processes should contact Focus on Energy. Our Energy Advisors can offer in-depth, industry-specific knowledge and deliver a neutral, third-party perspective that can help you to determine the most effective way to solve your energy challenges.

For more information, call 800-762-7077 or visit www.focusonenergy.com.

Focus on Energy is a public-private partnership offering energy information and services to energy utility customers throughout Wisconsin. The goals of this program are to encourage energy efficiency and use of renewable energy, enhance the environment, and ensure the future supply of energy for Wisconsin. **800.762.7077 focusonenergy.com**

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Radiant heater bands cut energy use for plastics processors

As a Wisconsin business, it pays to learn about emerging technologies that can help you save energy. With Focus on Energy, Wisconsin's statewide program for energy efficiency and renewable energy, all the information and resources you need are at your fingertips. Here's how Focus helped two plastic manufacturers in Wisconsin.

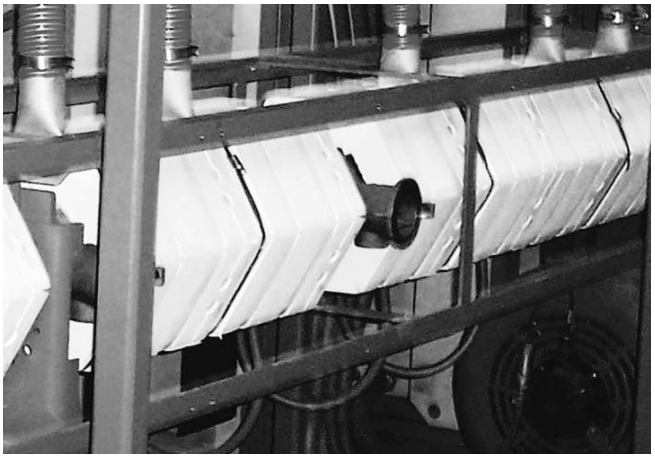
All heater bands are not created equal.
A new radiant heater band design that is easy to install, less labor intensive to maintain, and energy efficient shows promise for the plastics industry. The innovative radiant heater band design addresses traditional barrel heating and cooling inefficiencies. It hastens warm-up times and can make cool-down systems more effective.

PACTIV CORPORATION: SHEET EXTRUSION ENHANCEMENTS

The first of the newly designed radiant heater bands in Wisconsin were installed at Pactiv Corporation (Pactiv) in Chippewa Falls. Pactiv continually seeks process improvement and works with Focus on Energy to identify innovative energy savings opportunities. The thermal control system was an emerging technology Pactiv wanted to try.

"We were skeptical at first that something this simple could have the projected impact. After testing and measuring the results, we hope to install them on the rest of our extruders," said Mike Arrigoni, engineer, Pactiv. "The ease of installation of these heaters is a key benefit for us."

Pactiv cut energy use by 33 percent on a large plastic sheet extrusion machine. With 89,000 kWh hours per year in energy savings plus a Focus on Energy financial incentive, the project paid for itself in 1.7 years.



Energy use was cut by 33 percent thanks to the radiant heater band installation on a large plastic sheet extrusion machine at Pactiv Corporation.

Pactiv Corporation
Founded: 1999
Profile: Pactiv produces plastic products for the U.S. foodservice and food packaging markets. Its Hefty® brand is one of the nation's most widely recognized brands.
Website: pactiv.com

Xten Industries
Founded: 1940
Profile: Xten is based in Kenosha, Wisconsin and develops plastic parts, assembled components, and subassemblies for small- and medium-sized manufacturers.
Website: xtenindustries.com

Radiant heater bands cut energy use for plastics processors

XTEN INDUSTRIES: INJECTION MOLDING ENHANCEMENTS

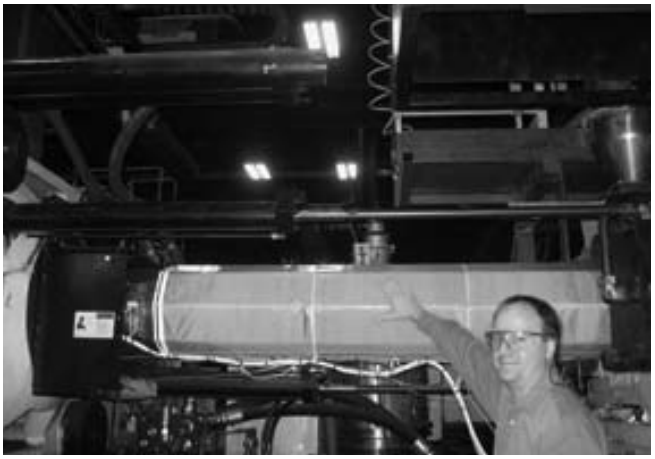
With help from Focus, Xten Industries (Xten) was on a mission to reduce its energy consumption. As such, radiant heater bands were a significant part of the plan. After a 90-day trial, Focus and Xten confirmed the savings matched the supplier's estimates. Xten then went ahead with the project, installing radiant heater bands on more than 20 injection molding machines.

To help fund the project, Xten received a $42,700 Focus incentive. The remainder of the project was financed through Focus' emerging technology shared-savings program. Focus receives 50 percent of the energy savings until the balance is paid off. Xten can purchase the equipment at a declining buyout price at any time.

"For every dollar we save on the heater bands, we keep $0.50 and pay Focus back $0.50," said Mathew Davidson, Xten's president. "That's money directly to our bottom line. It's a direct financing program for manufacturers who can promise to pay it back through the savings they're realizing."

BOTTOM LINE

Newly designed radiant heater bands for plastics equipment reduce energy use, improve temperature control, and are easy to install. Thanks to Focus on Energy, two Wisconsin companies, Pactiv and Xten Industries, are using this emerging technology and saving money and energy.



The installation of radiant heater bands on more than 20 injection molding machines at Xten Industries was made possible thanks to Focus' emerging technology financing solutions.

PARTNER WITH FOCUS AND FIND EMERGING TECHNOLOGIES THAT WORK FOR YOUR BUSINESS.

With help from Focus on Energy, Wisconsin businesses are saving millions of dollars annually in energy costs. To learn more call Focus at **800.762.7077**, visit **focusonenergy.com**, or email **emergingtech@focusonenergy.com.**

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Join our online conversation at **focusonenergy.com/socialnetworks** to connect with people who share your interest in saving energy and money at home and work. Also, visit **focusonenergy.com/incentives** for the latest incentives and requirements as Focus offers are subject to change.

Hydraulic controls built for ebb and flow

Are your hydraulic-injection molding presses running at full throttle all the time? Not efficient, right? That's why Focus on Energy, Wisconsin's statewide program for energy efficiency and renewable energy, worked with Xten Industries (Xten) to explore the impact of retrofitting the existing pump motors on their hydraulic injection molding presses with variable speed control systems—the results are positive for the plastics industry.

CHALLENGES

Xten, a custom injection molder and contract manufacturer, was near electrical capacity due to company growth. In other words, they were running out of available power. Instead of boosting electrical capacity to the facility, Xten's leadership team gave itself an energy-friendly challenge: reduce the company's energy use.

Xten got to work. The team installed energy-efficient lighting and motion sensors in offices, warehouses, and the production area. Heating and air conditioning improvements were next. However, Xten wanted higher savings. So, the decision was made to improve the efficiency of its core manufacturing processes without compromising product quality.

Xten uses electric and hydraulic injection molding machines to manufacture products. Demand for hydraulic fluid varies greatly during the molding process, yet, pumps ran at top speed all the time in order to meet infrequent maximum demand levels.

ACTIONS

Xten turned to Focus on Energy for objective third-party information to make smart energy decisions about its hydraulic presses. With regard to Xten's budget considerations, Focus selected 13 of Xten's hydraulic presses for energy-efficiency upgrade evaluation.

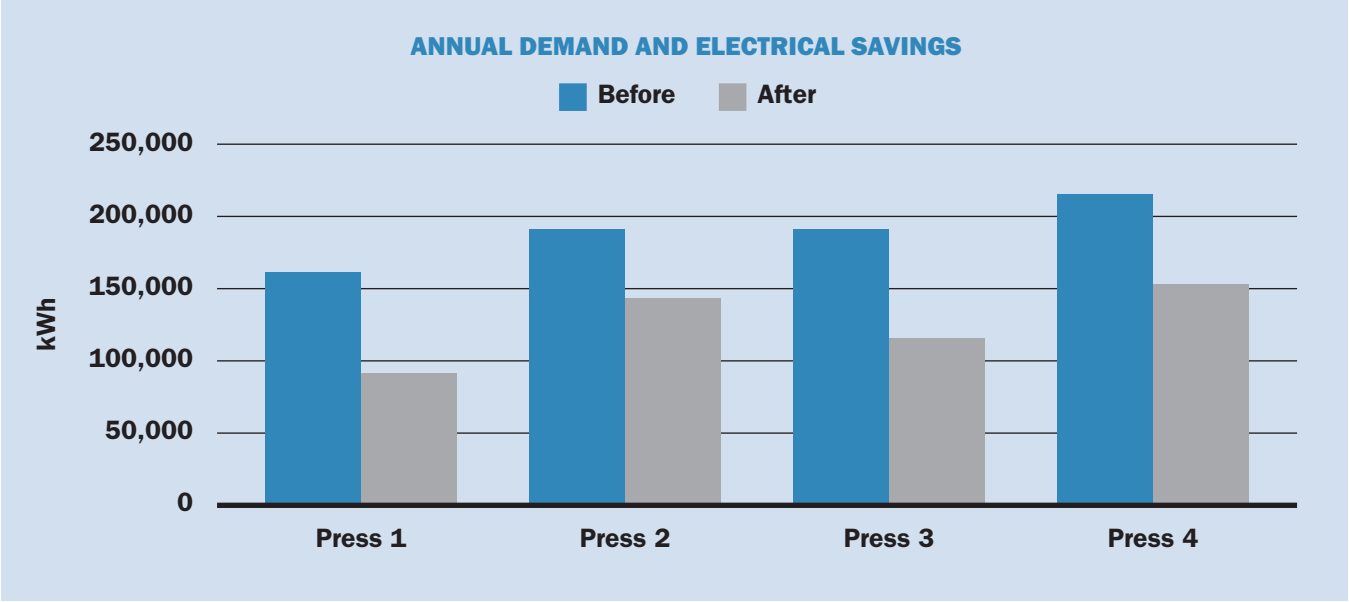
SyncroSpeed, a variable-frequency drive hydraulic control system, next to Xten's largest press.

About Xten Industries
Founded: 1940
Profile: Xten is based in Kenosha, Wisconsin and develops plastic parts, assembled components, and subassemblies for small- and medium-sized manufacturers.
Website: xtenindustries.com

A computer modeling tool helped estimate the energy savings for each press. Based on the model's findings, four presses were identified as the best candidates for variable-frequency drive hydraulic control systems. SyncroSpeed, a variable-frequency drive hydraulic control system, was installed on these four presses.

Instantaneously SyncroSpeed significantly reduced power consumption by automatically delivering the correct volume and pressure of hydraulic fluid needed at each stage of the process, and no more. SyncroSpeed works entirely behind the scenes, requiring no intervention from personnel during operation or set-up changes.

Hydraulic controls built for ebb and flow



RESULTS

The four retrofitted hydraulic presses use 34 percent less energy, saving Xten 220,000 kWh and $24,000 annually in electricity costs. Focus on Energy provided financial assistance in the form of a lease with no up front costs to Xten. Payments are made based on a portion of the energy savings. An additional $27,000 in Focus financial incentives was also provided. Payback on this project was a little over 2.5 years and four additional presses are scheduled for modification.

"In the past, the motors ran flat out all the time," says Mark Dirr, director of engineering at Xten. "Now with the retrofit controls, they only run just enough to get the job done. This saves a lot of electricity."

BOTTOM LINE

Xten significantly reduced its energy use, improved efficiency, and benefited from Focus on Energy's advice and financial assistance.

PARTNER WITH FOCUS AND FIND EMERGING TECHNOLOGIES THAT WORK FOR YOUR BUSINESS

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Focus on Energy works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. Focus information, resources, and financial incentives help to implement projects that otherwise would not be completed, or to complete projects sooner than scheduled. Its efforts help Wisconsin residents and businesses manage rising energy costs, promote in-state economic development, protect our environment, and control the state's growing demand for electricity and natural gas. For more information, call **800.762.7077** or visit **focusonenergy.com.**

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